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United States Patent [19]**Vincent, II et al.**[11] **Patent Number:** **5,774,421**[45] **Date of Patent:** **Jun. 30, 1998**[54] **UNDERWATER MEASUREMENT DEVICE**3,906,564 9/1975 Thompson et al. 441/26
4,692,906 9/1987 Neeley 367/133[75] **Inventors:** **Harold T. Vincent, II**, North
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Gauthier; Prithvi C. Lall[73] **Assignee:** **The United States of America as
represented by the Secretary of the
Navy**, Washington, D.C.[57] **ABSTRACT**

An underwater measurement device includes a housing for disposition on a sea bed surface, an opening defined by the housing, a buoy for disposition in the opening and buoyant so as to be floatable out of the opening, a cable interconnecting the housing and the buoy, and a winch in the buoy to pay out and take in the cable to permit the buoy to rise toward the sea surface and be drawn into the housing opening. A sensor is fixed to the buoy. Disposed in the device are communication circuitry for relaying to a remote station signals detected by the sensor, and operative circuitry for receiving instructions from the remote station and in response thereto operating the winch and the sensor.

[21] **Appl. No.:** **912,971**[22] **Filed:** **Aug. 4, 1997**[51] **Int. Cl.⁶** **H04B 11/00**[52] **U.S. Cl.** **367/131**[58] **Field of Search** 367/131, 133,
367/4; 441/26, 33[56] **References Cited**| **U.S. PATENT DOCUMENTS**

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15 Claims, 4 Drawing Sheets